

# Air Space Cyber—User Defined Operational Picture (ASC-UDOP)

POC: Kyle Holbritter, AFRL/RISB (315) 330-1512 Kyle.Holbritter@rl.af.mil

# Overview:

The Air, Space, and Cyber User-Defined Operational Picture (ASC-UDOP) is an AFRL developed visualization application that allows users to graphically configure and manipulate data streams from a variety of sources pertaining to the Air, Space, and Cyber domains. It applies composable visualization techniques to provide an environment appropriate for dealing with large and varied types of data ranging from synthetic to live, doing so with unprecedented configurability.

## **ASC-UDOP** was designed with two main objectives:

## 1) Allow processing large sets of heterogeneous data

- Provide access to data sets from various sources without the need to pre-process the data
- Facilitate confidence in the data by providing the ability to trace back from visualization to original data
- Provide a scalable system capable of processing 100k elements while still being responsive to the user

# 2) Provide the user the ability to define a dynamic operational picture

- Adopt a composable visualization paradigm that provides a graphical interface for building data visualizations, alleviating the need to do so programmatically
- Allow manipulation of this visualization while the system is running in order to adapt the visualization to newly available data sources or changes in the mission objectives
- Provide a mechanism to save and share these constructed visualizations with anyone using the ASC-UDOP application

## **ASC-UDOP** offers five key benefits to leaders:

- Places visualization capabilities directly into the hands of the domain experts
- Provides high-level views of incoming data as well as the ability to process and filter on specific points of interest
- Provides an application that is as dynamic as the environments it's intended to operate in
- Enhances productivity of operational personnel
- Open, modular architecture supporting enhancement, evolution and unit-specific needs



#### **Data Interfaces:**

ASC-UDOP uses OSGi modules to facilitate tying into new data sources, including external databases. These modules read, parse, and map data from essentially any data source, including all JDBC-compliant databases, flat files, live feeds, certain XML files, and external programs/processes into a configurable, normalized set of data elements.

ASC-UDOP has integrated and normalized data from EADS, Keynote, EHealth, NOA, KML, GPS propagation, DTED, CADRG, TerraSever, GeoTiff, Google Imagery, and AGI. ASC-UDOP is very versatile with respect to what data it can integrate.



## **ASC-UDOP Benefits to Operators and Analysts**

- "Big picture" views with drill-down to complete detail
- Support for multiple data sets, and personalized analyst views with sharing capability
- Ability to incorporate new technology as it becomes available

## **Situational Awareness through Advanced Visualization**

- Situational awareness can be enhanced by bringing together key information in a visual presentation
- Experts can sometimes rapidly identify patterns in visual data presentations which are not identifiable by correlation engines